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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/835,504	04/16/2001	Dennis Scott	8734.00	5384
7590	02/24/2004		EXAMINER	
Michael Chan Intellectual Property Section, Law Department NCR Corporation 101 West Schantz, ECD-2 Dayton, OH 45479-0001			AKHAVANNIK, HUSSEIN	
			ART UNIT	PAPER NUMBER
			2621	
DATE MAILED: 02/24/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/835,504	SCOTT ET AL.
	Examiner	Art Unit
	Hussein Akhavannik	2621

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on _____.
 2a) This action is **FINAL**. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-19 is/are pending in the application.
 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
 5) Claim(s) ____ is/are allowed.
 6) Claim(s) 1-19 is/are rejected.
 7) Claim(s) ____ is/are objected to.
 8) Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on 16 April 2001 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
 Paper No(s)/Mail Date _____.
 4) Interview Summary (PTO-413)
 Paper No(s)/Mail Date _____.
 5) Notice of Informal Patent Application (PTO-152)
 6) Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-4, 6, 8, 10, 12-14, and 16-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Kagami (U.S. Patent No. 4,623,975).

Referring to claim 10, which is representative of claim 1,

- i. A means for determining if a corner of the document is missing based upon captured image data associated with the document is explained by Kagami in column 16, lines 44-57. Kagami explains that if the widths of the corners (corresponding to X and Y illustrated in figure 17) are determined to fall within an allowable range, then the values of W_{i1} , W_{i3} , W_{m1} , and W_{m3} are stored. Kagami illustrates a processing circuit (45) in figure 6 capable of performing the methods explained by Kagami and illustrates the dog-ear determination as part of the document processing system in figure 12B by reference number 107.
- ii. A means for determining if the corner of the document has a fold when the corner of the document is determined to be missing is explained by Kagami in column 16, line 59 to column 17, line 36. Kagami explains that if the dog-ear amounts do not fall within an allowance, then the values are rejected. However, if the values do fall within the allowance, then dog-ears are determined as illustrated in figure 17. Kagami illustrates a

processing circuit (45) in figure 6 capable of performing the methods explained by Kagami and illustrates the dog-ear determination as part of the document processing system in figure 12B by reference number 107.

Referring to claim 12, which is representative of claims 2 and 17, determining if a corner of a document is missing including the means for determining if at least a predetermined amount of the corner of the document is missing is explained by Kagami in column 16, lines 44-55. The measured widths of the corner are stored if they fall within an allowable range, corresponding to both a bottom and top threshold that define the range.

Referring to claim 13, which is representative of claims 3 and 18, determining if the corner of the document has a fold including the means for determining if the fold of the corner of the document is at least a predetermined size is explained by Kagami in column 17, lines 12-36. Kagami explain that the dog-ear amounts are rejected if they fall outside an allowance determined by a dog-ear determination level. If the fold of each corner is larger/smaller, then the pixels values counted in equation (11) will change resulting in a different dog-ear amount for each corner.

Referring to claim 19, which is representative of claims 4 and 8,

- i. Determining if at least a predetermined amount of the corner of the document is missing corresponds to claim 2.
- ii. Determining if the fold of the corner of the document is at least a predetermined size corresponds to claim 3.

Referring to claim 14, which is representative of claim 6,

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- i. A means for scanning a document to capture image data which is representative of an image of the document is illustrated by Kagami in figure 6 by the line sensor (35).
- ii. A means for processing at least a portion of the captured image data to calculate a first count of pixels associated with a corner of the document is explained by Kagami in column 16, lines 55-65 and illustrated in figure 17. Kagami explains that the standard area SF1 is selected in a portion spaced apart from the edge (or corner) of the document by a predetermined amount (20 mm in the example of figure 17), thereby relating the SF1 to the corner of the document. The sum (or count) of the pixel values in SF1 is calculated in order to determine if a fold (or dog-ear) is present in the corner of the document. Kagami illustrates a processing circuit (45) in figure 6 capable of performing the methods explained by Kagami and illustrates the dog-ear determination as part of the document processing system in figure 12B by reference number 107.
- iii. A means for processing at least a portion of the captured image data to calculate a second count of pixels associated with the corner of the document is explained by Kagami in column 17, lines 14-16 by $\sum_{i=1}^{i=16} W_{ii}$. Kagami illustrates a processing circuit (45) in figure 6 capable of performing the methods explained by Kagami and illustrates the dog-ear determination as part of the document processing system in figure 12B by reference number 107.
- iv. A means for determining if the corner of the document is missing or has a fold based upon the first count of pixels associated with the corner of the document and the second count of pixels associated with the corner of the document is explained by Kagami in column 17, lines 14-16 and lines 24-27. The first count of pixels,

corresponding to S_{F1} , and the second count of pixels, corresponding to $\sum_{i=1}^{i=16} W_{i1}$, are used to

determine the value DE_{F1} . Kagami explains that if DE_{F1} is outside of an acceptable region or level, corresponding to a threshold, then a dog-ear (or fold) is determined.

Kagami illustrates a processing circuit (45) in figure 6 capable of performing the methods explained by Kagami and illustrates the dog-ear determination as part of the document processing system in figure 12B by reference number 107.

Referring to claim 16, the means for determining if the corner of the document is missing or has a fold including the means for determining whether a corner of the document is missing and means for determining if a corner of the document has a fold when the corner of the document is determined to be missing corresponds to claim 10.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 5, 7, 9, 11, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kagami in view of Williams (U.S. Patent No. 4,429,991).

Referring to claims 7, 11, and 15, determining the usability of the captured image data associated with the document based upon at least one of the determination as to whether the corner of the document is missing and the determination as to whether the corner of the document has a fold is not explicitly explained by Kagami. Kagami does illustrate a currency

damage signal, corresponding to no usability, in figure 12E, which is part of the overall system of Kagami, including the dog-ear determination as illustrated in figure 12B. However, Kagami does not explicitly explain determining the usability of the bank note (explained in column 1, lines 7-14) based upon the determination that a corner of the document is missing. Williams explains in column 1, lines 6-23 that missing or folded corners render bills unusable and require that the bills be taken out of circulation. Williams explains that bills with missing or folded corners reduce the reliability of bill detection systems (“drop below standards”). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use implement the usability determination system of Williams in the missing and folded corner detection system of Kagami in order to reject bills which may not be detected accurately by bill detection systems, such as vending machines.

Referring to claims 5 and 9, determining the usability of the captured image data associated with the document based upon at least one of the determinations of claims 2 and 3 corresponds to claim 11. The system of Kagami determines whether a corner of the document is missing by determining if at least a predetermined amount of the corner of the document is missing, corresponding to claim 2, and determines if the corner of the document has a fold by determining if the fold of the corner of the document is at least a predetermined size, corresponding to claim 3.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Leong et al (U.S. Patent No. 5,751,841) – To exhibit determining if the corner of a bank note is damaged as explained in column 5, lines 24-53.

Lau (U.S. Patent No. 5,323,473) – To exhibit determining the extent of a fold in the corner of a document by counting the pixels in coarse and fine detection steps as explained in column 13, line 17 to column 15, line 6.

Mirzaoff et al (U.S. Patent No. 6,408,094) – To exhibit determining the distance between an actual corner and a detected corner and thresholding the distance value to determine if a fold is present in a document as explained in column 7, lines 21-55.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hussein Akhavannik whose telephone number is (703)306-4049. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo H. Boudreau can be reached on (703)305-4706. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

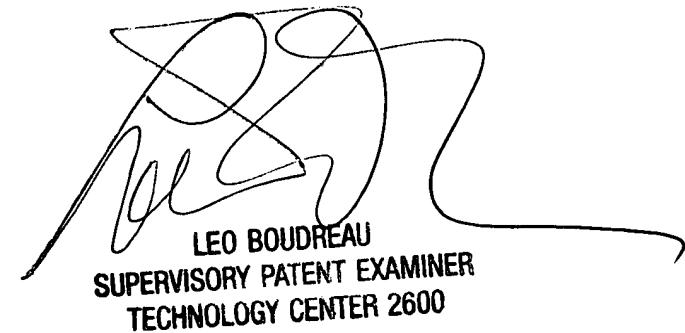
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February 12, 2004

H.A.



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